Amendments to the Claims:

The listing of the claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-41. (Cancelled).

Claim 42 (Previously presented): A process for the production of a polymer layer of a flexible unbonded offshore pipe comprising the steps of shaping a polymer material by extrusion in an extrusion station and cross-linking said extruded polymer material, said polymer material comprising a polyethylene and a peroxide for providing a cross-linking of the polymer material, said peroxide having an activation temperature substantially above the temperature of the polymer material during the extrusion thereof, said cross-linking of said extruded polymer material being carried out by exposing the extruded polymer material to electromagnetic waves, selected from the group consisting of infrared radiation and microwave.

Claim 43 (Previously presented): A process according to claim 42, wherein said peroxide having an activation temperature at least 10°C above the temperature of the polymer material during the extrusion thereof.

Claim 44 (Previously presented): A process according to claim 42, wherein said polymer material being shaped by extrusion onto a supporting unit in the extrusion station.

Claim 45 (Previously presented): A process according to claim 42, wherein said polymer material being shaped by extrusion into a supporting unit in the extrusion station.

Claim 46 (Previously presented): A process according to claim 42, wherein said extruded polymer material is exposed to electromagnetic waves for a sufficient time to thereby raise the temperature of the extruded polymer material at least to the activation temperature of the peroxide.

Claim 47 (Previously presented): A process according to claim 42, wherein the extrusion and cross-linking steps are carried out in an in-line process, including passing the extruded polymer material from the extruder through a cross-linking zone to activate said peroxide to thereby cross-link the polymer material, wherein said activation is performed by applying electromagnetic waves in the cross-linking zone, said polymer material preferably being passed from the extruder to the cross-linking zone with less than 25°C average intermediate cooling.

Claim 48 (Previously presented): A process according to claim 42, wherein the extrusion and cross-linking steps are carried out in an in-line process, including passing the extruded polymer material from the extruder through a cross-linking zone to activate said peroxide to thereby cross-link the polymer material, wherein said activation is performed by applying electromagnetic waves in the cross-linking zone, said polymer material preferably being passed from the extruder to the cross-linking zone with less than 10°C average intermediate cooling.

Claim 49 (Previously presented): A process according to claim 42, wherein the supporting unit is a reinforcement

layer of the flexible unbonded offshore pipe.

Claim 50 (Previously presented): A process according to claim 42 wherein the supporting unit is in the form of a carcass, said polymer layer being an inner liner of the flexible unbonded offshore pipe and said polymer material being extruded onto the carcass.

Claim 51 (Previously presented): A process according to claim 42, wherein the supporting unit is in the form of a pressure armour, said polymer layer being an intermediate layer of the flexible unbonded offshore pipe and said polymer material being extruded onto the pressure armour.

Claim 52 (Previously presented): A process according to claim 42, wherein the supporting unit is in the form of a tensile armour, said polymer material being extruded onto the tensile armour.

Claim 53 (Previously presented): A process according to claim 42, wherein the polymer layer is an inner liner of the flexible unbonded offshore pipe.

Claim 54 (Previously presented): A process according to claim 53, wherein said inner liner being extruded into a supporting unit, said supporting unit being in the form of a calibrating device which calibrates the outer dimension of the pipe using vacuum onto a supporting surface.

Claim 55 (Previously presented): A process according to claim 42, wherein the polyethylene has a density of at least 920 g/cm^3.

Claim 56 (Previously presented): A process according to

claim 42, wherein the polyethylene has a density of at least 940 g/cm^3.

Claim 57 (Previously presented): A process according to claim 42, wherein the polyethylene has a density of at least 945 g/cm^3.

Claim 58 (Previously presented): A process according to claim 42, wherein the polyethylene has a density of at least 955 g/cm^3.

Claim 59 (Previously presented): A process according to claim 42, wherein the polymer material comprises at least 50% by weight of polyethylene.

Claim 60 (Previously presented): A process according to claim 42, wherein the polymer material comprises at least 85% by weight of polyethylene.

Claim 61 (Previously presented): A process according to claim 42, wherein the polymer material comprises up to about 10% by weight of fillers.

Claim 62 (Previously presented): A process according to claim 61, wherein the fillers being selected from the group consisting of pigments, heat stabilisers, process stabilisers, metal deactivators, flame retardants and reinforcement fillers.

Claim 63 (Previously presented): A process according to claim 42, wherein the polymer material comprises up to about 40% by weight of additional polymer(s) other than polyethylene.

Claim 64 (Previously presented): A process according to claim 63, wherein said additional polymer(s) being selected from the group consisting of thermoplastics preferably selected from the group consisting of thermoplastic elastomers; rubbers; polyolefins; liquid crystal polymers; polyesters; polyacrylates; polyethers; and polyurethane.

Claim 65 (Previously presented): A process according to claim 42, wherein the amount of peroxide in the polymer material is at least 0.1% by weight of the polymer material.

Claim 66 (Previously presented): A process according to claim 42, wherein the amount of peroxide in the polymer material is between 0.2% and 3% by weight of the polymer material.

Claim 67 (Previously presented): A process according to claim 42, wherein the polymer material comprises peroxide from 0.1% to 1.0% by weight.

Claim 68 (Previously presented): A process according to claim 42, wherein the polymer material comprises peroxide from 0.3% to 0.8% by weight.

Claim 69 (Previously presented): A process according to claim 42, wherein the peroxide has an activation temperature above 145°C,

Claim 70 (Previously presented): A process according to claim 69, wherein the peroxide being selected from the group consisting of butylcumyl peroxide, dicumyl peroxide, Trigonox 145B, hydroperoxide, 2,5-dimethyl hexane 2,5-di-t-butyl peroxide, bis(t-butylperoxy isopropyl)benzene, t-

butyl cumul peroxide, di-t-butyl peroxide, 2,5-dimethyl hexine-3 2,5-di-t-butyl peroxide and butylhydroperoxide.

Claim 71 (Previously presented): A process according to claim 42, wherein the cross-linking is activated by exposing the extruded polymer to electromagnetic waves with a wavelength measured in vacuum of between 0.5 μm and 20 cm.

Claim 72 (Previously presented): A process according to claim 42, wherein the cross-linking is activated by exposing the extruded polymer to electromagnetic waves with a wavelength measured in vacuum of between 0.8 μm and 10 cm.

Claim 73 (Previously presented): A process according to claim 42, wherein the cross-linking is activated by exposing the extruded polymer to electromagnetic waves with a wavelength measured in vacuum of between 2.0 μm and 1000 μm.

Claim 74 (Previously presented): A process according to claim 71 wherein the cross-linking is activated by application of infrared radiation.

Claim 75 (Previously presented): A process according to claim 74 wherein the infrared radiation comprising wavelengths in the range 0.5-10 μm.

Claim 76 (Previously presented): A process according to claim 74 wherein at least 50% of the energy applied by infrared radiation is applied in the form of infrared radiation with wavelengths in the range 0.5-10 μm.

Claim 77 (Previously presented): A process according to claim 74 wherein at least 50% of the energy applied by infrared radiation is applied in the form of infrared radiation with wavelengths in the range 1.0-5.0 μm.

Claim 78 (Previously presented): A process according to claim 71 wherein the cross-linking is activated by application of infrared radiation, the infrared radiation comprising wavelengths corresponding to the absorption peaks for the polymer material.

Claim 79 (Previously presented): A process according to claim 78 wherein the maximum intensity of the infrared radiation is in the range 0.5-10 μm.

Claim 80 (Previously presented): A process according to claim 78 wherein the maximum intensity of the infrared radiation is in the range 1.0-7.0 μm.

Claim 81 (Previously presented): A process according to claim 78 wherein the maximum intensity of the infrared radiation is in the range 3.0-7.0 μm.

Claim 82 (Previously presented): A process according to claim 42, wherein the pressure in the cross-linking zone is raised to avoid formation of bubbles and irregularities.

Claim 83 (Previously presented): A process according to claim 81, wherein the pressure in the cross-linking zone is raised above 2 bars.

Claim 84 (Previously presented): A process according to claim 42, wherein the extruded material is exposed to the treatment with electromagnetic waves in said cross-linking

zone for up to about 600 seconds.

Claim 85 (Previously presented): A process according to claim 42, wherein the extruded material is exposed to the treatment with electromagnetic waves in said cross-linking zone for 5 to 120 seconds.

Claim 86 (Previously presented): A process according to claim 42, wherein the extruded polymer material is subjected to a treatment with infrared radiation in said cross-linking zone, the temperature of the polymer material being raised to above 145°C.

Claim 87 (Previously presented): A process according to claim 42, wherein the extruded polymer material is subjected to a treatment with infrared radiation in said cross-linking zone, the temperature of the polymer material being raised to between 150 and 200°C.

Claim 88 (Previously presented): A process according to claim 42, wherein the degree of cross-linking obtained is 75% to 90%.

Claim 89 (Previously presented): A process according to claim 42, wherein the degree of cross-linking obtained is 80% to 85%.

Claim 90 (Previously presented): A process according to claim 42, wherein the extruded polymer material enters the cross-linking zone immediately after extrusion.

Claim 91 (Previously presented): A process according to claim 42, wherein the extruded polymer material enters the cross-linking zone no later than 2 minutes after extrusion.

Claim 92 (Previously presented): A process according to claim 42, wherein the extruded and cross-linked polymer material is cooled to ambient temperatures.

Claim 93 (Previously presented): A process according to claim 42, wherein the supporting unit is a metallic material.

Claim 94 (Previously presented): A process according to claim 42 wherein the supporting unit is in the form of a reinforcing layer of the flexible unbonded offshore pipe, which metallic material reflects at least part of the electromagnetic waves applied in the cross-linking zone.

Claim 95 (Previously presented): A process according to claim 42, wherein the supporting unit is an armour layer of the flexible unbonded offshore pipe, said armour layer comprising a secondary layer in the form of a tape applied onto the armour, the polymer composition being extruded onto said tape.

Claim 96 (Previously presented): A process according to claim 42, wherein the supporting unit is an armour layer of the flexible unbonded offshore pipe, said armour layer comprising a secondary layer in the form of a gas permeation barrier applied onto the armour, the polymer composition being extruded onto said tape.

Claim 97 (Previously presented): A process according to claim 96, wherein said gas permeation barrier is impermeable to liquid and gas.

Claim 98 (Previously presented): A process according to

claim 95, wherein said secondary layer has a reflective surface reflecting the electromagnetic waves applied in the cross-linking zone.

Claim 99 (Previously presented): A process according to claim 98, wherein said reflective surface of the secondary layer being capable of reflecting at least 50% of the not adsorbed electromagnetic waves.

Claim 100 (Previously presented): A process according to claim 42, wherein the velocity of the extrusion of the polymer material is approximately equal to the velocity of the extruded polymer passing through the cross-linking zone.

Claim 101 (Previously presented): A process according to claim 42, wherein the polymer layer is an inner liner of the offshore pipe, said inner liner preferably having a thickness of 4 mm or more.

Claim 102 (Previously presented): A process according to claim 42, wherein the polymer layer is an inner liner of the offshore pipe, said inner liner preferably having a thickness of 8 mm or more.

Claim 103 (Previously presented): A process according to claim 42, wherein the polymer layer is an inner liner of the offshore pipe, said inner liner preferably having a thickness of 12 mm or more.

Claim 104 (Previously presented): A process according to claim 42, wherein the polymer layer is an inner liner of the offshore pipe, said inner liner preferably having a thickness of 16 mm or more.

Claim 105 (Previously presented): A process according to claim 42, wherein the polymer layer is an inner liner of the offshore pipe, said inner liner preferably having a thickness of 18 mm or more.

Claim 106 (Previously presented): A method for the production of a flexible unbonded offshore pipe comprising one or more polymer layers, one or more of said polymer layers being produced according to the process defined in claim 42.

Claim 107 (Previously presented): A method for the production of a flexible unbonded offshore pipe, said method comprising the steps of

i) providing a carcass
ii) applying a gas permeation barrier layer onto the carcass,
iii) applying an inner liner in the form of a polymer layer using the process as defined in claim 42, wherein the polymer material is applied onto a supporting unit,
iv) applying one or more reinforcing layers onto the inner liner.

Claim 108 (Previously presented): A method for the production of a flexible unbonded offshore pipe, said method comprising the steps of

i) providing an inner liner in the form of a polymer layer using the process as defined in claim 42, wherein the polymer material is applied into a supporting unit,

ii) applying a gas permeation barrier layer onto the inner liner

iii) applying one or more reinforcing layers onto the inner layer.

Claim 109 (Previously presented): A method according to claim 73 wherein the gas permeation barrier layer is a wound or folded layer of a foil, such as a metal foil, the foil preferably being wound or folded with overlapping edges.

Claim 110 (Previously presented): A method according to claim 73 wherein the gas permeation barrier layer is an extruded polymer layer.

Claim 111 (Previously presented): A method according to claim 73 where said gas permeation barrier layer is sufficiently impermeable to gas to prevent gas such as methane, hydrogen sulphides and carbon dioxides at a pressure of 5 bars from diffusing through the layer to its other side with a pressure of 1 bar.

Claim 112 (Previously presented): A flexible unbonded offshore pipe comprising at least one polymer layer, said polymer layer being obtained using the process as defined in claim 42.

Claim 113 (Previously presented): A flexible unbonded offshore pipe comprising an inner liner obtained using the process as defined in claim 42.

Claim 114 (Previously presented): A flexible unbonded offshore pipe comprising an outer cover obtainable using the process as defined in claim 42.

Claim 115 (Previously presented): A flexible unbonded offshore pipe comprising an intermediate polymer layer obtained using the process as defined in claim 42.

Claim 116 (Previously presented): A flexible unbonded offshore pipe obtained by the method as defined in claim 42.